

U.S. COAST GUARD
MARINE SAFETY OFFICE PORTLAND, MAINE

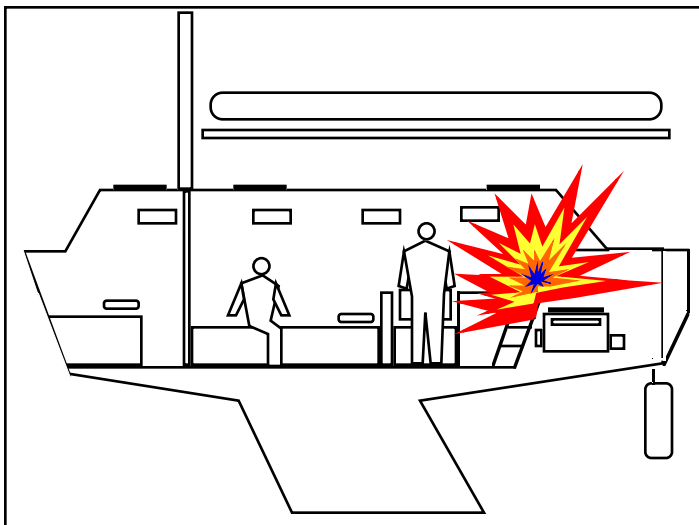
SAFETY ALERT

Propane Gas Explosion Hazard

On April 23, 1998 a 38 foot recreational sailboat experienced a propane gas explosion while moored in Boothbay Harbor. The sailboat's crew of two was inside the sailboat hull at the time of detonation. One of the crew members was seriously injured in the incident, suffering second and third degree burns and lacerations from flying debris.

The sailboat was fitted with a propane gas system to supply a galley stove. The propane tank was mounted in a locker in the cockpit, and was connected to the galley stove by a piping system. While the crew was engaged in cooking dinner, propane leaked from a loose fitting at a pressure gauge in the line near the tank. Propane gas accumulated in the engine compartment of the vessel, where it reached an ignition source, probably a spark from the vessel's 12 volt electrical system.

The explosion injured one of two crew members and caused significant damage to the vessel, including heavy cracking of the deck and separation of the deck from the hull. Fortunately, the explosion did not create a significant secondary fire, and the crew was able to abandon the vessel to their skiff.



Leaking propane gas accumulated in the vessel's engine space and detonated while the crew was within the hull. One person suffered serious injuries in the blast.



The vessel operator failed to check this fitting in the propane system following servicing of the system and before use. The result was a propane leak into the hull, which resulted in a powerful explosion.

The vessel owner reported removing, filling, and replacing the propane cylinder a few weeks prior to the accident. While the owner checked the propane piping fittings and connections in the immediate vicinity of the tank connections, he did not check the rest of the system for potential leaks.

This accident demonstrates the importance of careful inspection of all propane piping systems prior to system use. Propane piping connections should be checked carefully for leaks with soapy water while under pressure.

Leaks from propane systems and other potentially explosive fuel sources are inherently more dangerous on marine vessels than in most other locations. The watertight envelope of a vessel's hull will contain and trap even minor quantities of gas, allowing explosive concentrations to accumulate rapidly. Propane gas is extremely explosive, and as this accident demonstrates, can reach explosive concentrations without being detected by a vessel's crew.

For further information on this Safety Alert contact:
USCG Marine Safety Office
P.O. Box 108
Portland, Maine 04112
1-207-780-3251 ext. 115

<http://www.biddeford.com/~msoport>



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